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November 25, 2009

The Honorable Chairman and Members  
of the Hawaii Public Utilities Commission  
Kekuanaoa Building, 1st Floor  
465 South King Street  
Honolulu, Hawaii 96813

FILED  
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PUBLIC UTILITIES  
COMMISSION

Dear Commissioners:

Subject: Docket No. 2009-0108 – Proposed Amendments to the IRP Framework  
Hawaiian Electric Companies' Responses to Information Requests

Pursuant to the *Order Approving the Stipulated Procedural Order, as Modified*, filed on September 23, 2009, and further modified by *Order Amending Schedule*, filed on November 5, 2009, enclosed for filing are the Hawaiian Electric Companies'<sup>1</sup> responses to the information requests ("IRs") submitted by the Parties to the subject docket<sup>2</sup> on November 10, 2009.

Very truly yours,

Enclosures

cc: Service List

<sup>1</sup> The "Hawaiian Electric Companies" are Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc., and Maui Electric Company, Limited.

<sup>2</sup> Parties filing IRs include: the County of Hawaii, the County of Kauai, the County of Maui, the Division of Consumer Advocacy, Kauai Island Utility Cooperative, the Department of Business, Economic Development and Tourism, Blue Planet Foundation, Hawaii Renewable Energy Alliance, Hawaii Solar Energy Association, and JW Marriott Ihilani Resort & Spa, Waikoloa Marriott Beach Resort & Spa, Maui Ocean Club, Wailea Marriott, and Essex House Condominium Corporation, on behalf of Kauai Marriott Resort & Beach Club (collectively "Marriotts"). Party Haiku Design and Associates and Participant Forest City Hawaii Residential, Inc. did not submit IRs.

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# Division of Consumer Advocacy

CA-HECO-IR-1

Ref: Planning Process.

- a. Please provide the Companies' definition and description of what would comprise a "scenario."
- b. Please discuss how many scenarios might be developed for each action plan to be submitted for Commission review and/or approval.
  1. Please discuss the basis for the Companies' preferred number, or range, of scenarios that would be submitted with each action plan.
  2. Please identify potential factors that would affect the number of scenarios that the Companies would conduct and be willing to conduct.
- c. Based on the assumption that each scenario will be conducted on a "high level" basis, please estimate the number of labor hours that may be projected or required for the first scenario and, separately, all subsequent scenarios. Please provide the support, assumptions and workpapers used to determine the response.
  1. For this question, the Consumer Advocate assumes that the first scenario might require the greatest number of hours to establish certain base assumptions and inputs. The development of subsequent scenarios would then require somewhat less time. Please discuss the reasonableness of this assumption.
  2. If each scenario will require approximately the same amount of time, please discuss reasons why, if not already provided in response elsewhere.
  3. Based on the responses provided, please provide the estimated labor costs associated with developing the first scenario and, separately, subsequent scenarios. Please identify labor and non-labor costs separately.
- d. If, during the period in which an action plan was supposed to be effective, new information or a new development occurs (e.g., the price of a particular renewable energy technology significantly increases or decreases from the initially used range of values in a scenario(s), please discuss whether it would be reasonable to develop a process to review the additional scenario or scenarios between formal action plans.
- e. If it is assumed that each scenario is conducted on a more detailed basis, please discuss how this would affect the Companies' response to part (c) of this information request.

Hawaiian Electric Companies' Response:

- a. Page 4 of Attachment A of the Hawaiian Electric Companies' Preliminary Statement of Position ("PSOP") is the Proposed CESP Framework which defines "scenarios" as "a range of possible energy-related policy choices and risks facing the utility and its customers." Section III.D.1.a of the Proposed CESP Framework states that "[t]he factors and assumptions underlying the development of each scenario, which includes but is not limited

to: (a) the generation and transmission needs identified; (b) the proposed procurement method for generation resources identified in the plans; (c) the forecasts made; (d) the assumptions underlying the forecasts; (e) the assumptions and the basis of the assumptions underlying the plans; (f) the risks and uncertainties associated with plans....” Section III.D.1.b also describes that the “CESP scenarios shall be analyzed and developed to reflect a range of possible energy-related policy choices and risks facing the utility systems and citizens. These scenarios may feature different policy backdrops, such as major increases or decreases in oil prices, policy changes such as federal or international carbon regulation or the adoption of plug-in hybrid electric vehicles/electric vehicles, as well as different resource policies such as higher levels of energy efficiency, demand response, and renewable substitution....these scenarios may feature different economic and financial backdrops, such as ranges of future State economic health and range of future financial market conditions.”

The Hawaiian Electric Companies’ PSOP states on page 17 that “Each CESP scenario would be developed using a set of planning assumptions. Examples of the kinds of assumptions that would form the basis for a scenario include load forecasts, fuel forecasts (fossil and biofuel), programmatic options, differing market penetrations for demand-side resources and customer-sited distributed generation, GHG regulations, etc. The assumptions would vary for the different CESP scenarios in order to facilitate planning analysis across a wide range of possible futures and uncertainties for achieving the clean energy goals. For each scenario, a 20-year resource plan will be developed based on the assumptions set for the scenario that considers, among other aspects, statutory and regulatory requirements, cost to customers, the achievement of desired levels of reliability, operational requirements and constraints, and risk of the plan not achieving



these many objectives.” Some of the specific planning assumptions that are envisioned to be a part of the CESP scenarios are discussed in the Proposed CESP Framework under Section IV. (Planning Considerations).

- b. Rather than the CESP Framework, the Hawaiian Electric Companies believe that the CESP process, in which relevant planning issues and questions are to be evaluated, is the preferable point at which to determine what is a reasonable and appropriate number of scenarios to evaluate. Defining scenarios or the number of scenarios to evaluate in a CESP Framework results in unnecessary inflexibility in the framework.

The range of differences between scenarios, whether scenarios selected are a combination of multiple energy impacting scenarios taken together (e.g., having an undersea cable and having a significant amount of EV penetration in the transportation sector), the depth of analysis required based upon the scenario (e.g., an EV scenario may require CESP integration to perform analytical work on charging infrastructure requirements, vehicle deployment rates, and other issues not part of “traditional” utility planning), and the matrix-multiplying impact of the number of scenarios have on the volume of analysis required and the resulting impact to schedule and CESP process length. Measures, such as selecting fewer scenarios with greater differences between scenarios and greater impacts to resource plan portfolios is one of many techniques that could be employed in a CESP process to achieve a balance between breadth of analysis to provide a reasonable assurance that the range scenarios evaluated will encompass events going forward with a reasonable volume of analysis to be performed within the CESP process. The Hawaiian Electric Companies do generally agree with the NRRI’s Comments that “[e]ffective scenario planning focuses on a relatively small set of scenarios, creatively established.....and eight scenarios represent the

practical limit for scenario planning that is efficient and transparent.”

- c. Please refer to the Hawaiian Electric Companies’ response to HSEA-HECO-IR-6 regarding what the Hawaiian Electric Companies refer to as “high level” planning. The Hawaiian Electric Companies are unable to estimate the number of labor hours associated with developing undefined scenarios and scope of planning analysis. The many details of a specific CESP process, including those discussed briefly above in response to subpart b. would impact the labor hours required to perform analyses for each planning scenario.
- d. As discussed on page 24 of the Hawaiian Electric Companies’ PSOP, possible changes to the Action Plan would be addressed through the continuation of Advisory Committee meetings and the evaluation report process. Section III.E.1.c of the Proposed CESP Framework was added to reflect the HECO Companies’ commitment to continue meeting with the Advisory Committee at least quarterly between full cycle processes. The Hawaiian Electric Companies believe that the purpose of the evaluation report is to update the Action Plan as required by Sections III.D.3 and III.D.4. Updating the Action Plan does not necessarily mean redoing the entire scenario planning analysis. An objective of defining and selecting CESP scenarios to analyze is to cover the likely range of possible futures adequately that the evaluation would discuss how the change in conditions is reflected in the update to the Action Plan. Keeping in mind that the proposed CESP framework is intended to repeat the full cycle process every three years, the intent is that Action Plan should be fairly up-to-date.
- e. Not applicable.

CA-HECO-IR-2

Ref: Planning Process.

- a. Based on the assumption that there would be a possible range of scenarios that would support the development of an action plan, please provide a comprehensive discussion of how the Companies envision culling or selecting the various inputs or analyses from the various scenarios to develop a single action plan.
  1. Please provide a description and discussion of the Companies' envisioned process to develop an action plan using hypothetical scenarios. In other words, please provide a "mock-up" action plan that was developed using certain fictional scenarios and provide the discussion of how the Companies developed its action plan using various elements from different scenarios.
  2. If not readily evident in the Companies' response, please discuss how cost effectiveness and cost benefit analyses are considered at the following possible levels within CESP planning:
    - (a) the cost effectiveness on a resource level;
    - (b) the cost effectiveness on a scenario level; and
    - (c) the cost effectiveness for an action plan.
- b. The Consumer Advocate was assuming that the action plan for CESP, unlike IRP, would be more fluid and dynamic. That is, a company's actions might vary depending on various events and circumstances that might prevail at the time of a decision point. For purposes of this information request, reference to a decision point represents a point in time where a utility company must decide what type of resource and action it will pursue as the preferred option. Please discuss this assumption.
  1. If this assumption is incorrect and the Companies do not envision that CESP would be that fluid and dynamic, please provide a detailed discussion of the value associated with developing various scenarios that would not serve as a portfolio of choices that could be selected from to meet a particular need at a decision point.
  2. If the assumption is incorrect and if not already discussed, please discuss whether the Companies envision the CESP to be more prescriptive, similar to how most parties initially envisioned the IRP process to be, where any deviation from the action plan, whether approved or accepted by the Commission, would be met with significant concern and/or opposition.
- c. Based on the assumption that a company's decisions may vary from the action plan initially developed and submitted, please discuss whether the Company considered the need to revisit and redevelop a new action plan as part of the support that the company would provide to the Commission to justify the decision to pursue that particular alternative, if different from the initially developed action plan.
  1. If not, please explain why a new action plan, that clearly illustrates certain key factors (e.g., how the selected alternative fits into the current system, how it meets the stated objective, how it supports Hawaii's energy future, etc.), would not be necessary.
  2. If the assumption is that a new action plan would be developed, please confirm that the factors used to develop the action plan would be selected from the

- initially developed scenarios or by a new scenario that would reflect new information or assumptions.
3. Please provide a description and discussion of the Companies' envisioned process to develop and/or incorporate any new action plan(s) using hypothetical scenarios. In other words, please provide a "mock-up" action plan that was developed using certain fictional scenarios and provide the discussion of how the Companies developed its action plan using various elements from different scenarios.
  - d. If the assumption set forth in part c. does not comport with the Companies' vision of CESP, please provide a detailed discussion of how the Companies intend to pursue a hypothetical resource if it deviates from the initially developed action plan.

Hawaiian Electric Companies' Response:

- a. As stated in Hawaiian Electric Companies' response to CA-HECO-IR-1, detailed discussion of the range of scenarios and the development of the Action Plan should be conducted during the actual CESP process and not for the development of the framework requirements. Page 10 of the Commission's Decision and Order No. 11523 in Docket No. 6617 establishing the IRP Framework states that "[t]he framework prescribes in general what the utilities are required to do and the factors to be considered in developing their respective integrated resource plans. It outlines the commission's minimum expectations concerning the utilities' plans and planning process. Within these general guidelines, the utilities are free to fashion their processes and develop their plans as they see fit, subject to the advice and input of the utilities' integrated resource advisory groups." The Hawaiian Electric Companies believe this same view should apply to the development of the CESP framework.
- b. The Hawaiian Electric Companies do indeed believe that the CESP Action Plan would need to be viewed in a fluid and dynamic manner and may need to change in either specific actions to take or the timing of identified actions. Such a need for flexibility in the application of an Action Plan has always existed.

- c. If at a point following the filing of a CESP Action Plan a need arises to change either specific actions and decisions the Hawaiian Electric Companies must take, or the timing to implement specific actions of an Action Plan, such differences between these decisions and the filed Action Plan may not automatically require a redevelopment of the Action Plan. For example, if situations are such that the Hawaiian Electric Companies decides to file an application for a capital project with in-service timing different from that identified in the Action Plan, the application could discuss the reasons for and provide analysis to support the different in-service date. The new in-service timing of a proposed project may be based on current load information or benefit from the performance of a study or engineering analysis not available during the CESP process in which the Action Plan was identified. In this example, the PUC application for the capital project would provide the necessary details explaining the reasons for a change of a specific Action Plan item without a need to redevelop the entire CESP Action Plan.
- d. Not applicable.

CA-HECO-IR-3

Ref: Planning Process.

- a. Please confirm that when the Companies submit any type of non-CESP application, including, but not limited to General Order No. 7, pilot load control, purchased power contract, etc., that application will be accompanied by a discussion that clearly discusses the nexus between the requested relief and the action plan initially developed or, if applicable, a modified action plan.
- b. If the Companies do not intend to provide a discussion that clearly discusses the nexus between non-CESP applications and the action plan, please explain why not.

Hawaiian Electric Companies' Response:

- a. Yes, it is the Hawaiian Electric Companies' intent to provide a discussion on how the project application has been coordinated with the CESP process and CESP Action Plan or updated evaluation, if applicable. Also see the Hawaiian Electric Companies' response to CA-HECO-IR-2, part c.
- b. Not applicable.

CA-HECO-IR-4

Ref: Planning Process.

Earlier the Consumer Advocate inquired about how scenarios might be evaluated and asked questions about cost effectiveness.

- a. Please identify the tests or analyses that the Companies intend to rely upon to evaluate cost effectiveness.
- b. If there are any tests or analyses which are new, as compared to the IRP process, please discuss why these tests or analyses should be used for CESP.
- c. If there are any tests or analyses which the Companies plan to cease relying upon, please explain why these tests or analyses should be excluded or eliminated.

Hawaiian Electric Companies' Response:

- a. As discussed on page 18 of Hawaiian Electric Companies' Preliminary Statement of Position ("PSOP"), the Hawaiian Electric Companies are envisioning performing cost effectiveness analysis for the energy efficiency programs as was done in the past IRP proceedings. Cost effectiveness of demand response programs would also be evaluated. The resulting energy efficiency programs and demand response programs could then be incorporated into the development of resource plans for each CESP scenario.
- b. As discussed on page 19 of the Hawaiian Electric Companies' PSOP, the incorporation of the Competitive Bidding Framework eliminates the need to evaluate the cost effectiveness of "all" feasible supply-side resource options. On page 19 of Attachment A of the Hawaiian Electric Companies' PSOP, Section IV.E.3.b of the Proposed CESP Framework describes a process of how the costs for generic resources would be used to develop the CESP scenarios.

If a new test or analyses, not identified at this time, should be helpful to a future CESP process, or if a test or analyses performed in previous IRPs are found to not be helpful to a future CESP process, the CESP Framework should not restrict such refinements in

evaluation and cost effectiveness methods.

- c. Not applicable.



CA-HECO-IR-5

Ref: Planning Process.

It was the Consumer Advocate's understanding that the competitive bid docket would essentially create the need for a placeholder in the planning process. That is, if there is a perceived need for a resource, the utility company might identify the need for a resource that might be somewhat general at certain times, and more specific at others. Upon which, interested vendors could submit bids to fill that need. For instance, the Company might identify a 10 MW (non-firm) need to be met in 2012 and interested vendors could submit bids consisting of a range of options such as: firm renewable, firm fossil, non-firm renewable, load control, energy efficiency, and any other feasible option.

- a. Based upon the above understanding, please generally discuss how the costs associated with the identified need would be translated into a monetary metric to evaluate the cost effectiveness of a scenario and action plan.
- b. The Consumer Advocate understands that the upfront capital expenditures and stream of ongoing expenses vary from resource to resource. Based on that understanding, if not already discussed, please discuss how the Companies' envision the ability to evaluate cost effectiveness with reasonable accuracy for an identified need, but not necessarily a specific resource.

Hawaiian Electric Companies' Response:

- a. The Consumer Advocate's understanding of an outcome of a need for a resource identified in the CESP process is an "all source RFP", that would solicit and evaluate both supply-side and demand-side resources. Given the specific needs of each island's system, the compliance requirements to specific energy laws, such as RPS and EEPS, the Hawaiian Electric Companies believe that such "all source RFPs" would not ensure the acquisition of resources needed to comply with these various laws and address the operational needs of each system. Instead, the CESP process would need to identify separately the size, timing and attributes of supply side resources and demand-side resources<sup>1</sup>. Cost-effective analyses between supply-side and demand-side resources would not necessarily be needed since

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<sup>1</sup> In the case of energy-efficiency demand-side resources, the Public Benefits Fee Administrator may develop specific DSM program options for inclusion in the CESP process, depending upon the decided role of the PBF Administrator on the CESP process.

Hawaii law has been recently amended to provide separate requirements for each.

- b. Please see the Hawaiian Electric Companies' response to CA-HECO-IR-4. As has been utilized in past IRPs, one way to evaluate cost effectiveness of resources with different cost or price streams is to accumulate different future price streams for different options and employ a net present value calculation.

CA-HECO-IR-6

Ref: Planning Process.

Please discuss how the Company intends to calculate and evaluate avoided costs, both for short- and long-term purposes, in future analyses.

Hawaiian Electric Companies' Response:

Background

Avoided costs are the incremental or additional costs to the utility of electric energy or firm capacity or both which costs the utility would avoid as a result of (a) purchasing firm capacity and/or energy from a qualifying facility or (b) implementing energy conservation or energy efficiency measures, such as energy efficiency demand-side management or load management programs.

Short-run avoided costs typically apply to time periods of a month to a year. Long-run avoided costs typically apply to time periods of a year or more. The Hawaiian Electric Companies will need to continue to calculate long-run and short-run avoided costs for certain purposes. For example, the Hawaiian Electric Companies may need to continue to calculate long-run avoided costs to evaluate the cost-effectiveness of purchasing firm capacity and/or energy from qualifying facilities on a long-term basis, although alternative means of determining cost-effectiveness may be used, as explained below. The Companies will need to continue to calculate short-run avoided costs to determine energy payments rates for those independent power producers who currently sell energy to Hawaiian Electric Company, Inc. ("HECO"), Hawaii Electric Company, Inc. ("HELCO"), or Maui Electric Company, Limited, ("MECO") under existing power purchase agreements, where the energy payments rates are determined from the respective company's short-run avoided energy cost. The Hawaiian Electric

Companies currently file with the Commission on a monthly basis their avoided energy cost rates, including those for Schedule Q, which applies to facilities less than 100 kW.

Prior to Act 50 (2009), which was signed into law on May 9, 2009, the utility's avoided cost represented an important threshold in determining the cost-effectiveness of renewable or alternative resources. Prior to the enactment of Act 50, Hawaii Revised Statutes ("HRS") §269-27.2(c) stated:

The rate payable by the public utility to the producer for the nonfossil fuel generated electricity supplied to the public utility shall be as agreed between the public utility and the supplier and as approved by the public utilities commission; provided that in the event the public utility and the supplier fail to reach an agreement for a rate, the rate shall be as prescribed by the public utilities commission according to the powers and procedures provided in this chapter.

In the exercise of its authority to determine the just and reasonable rate for the nonfossil fuel generated electricity supplied to the public utility by the producer, the commission shall establish that the rate for purchase of electricity by a public utility shall not be more than one hundred per cent of the cost avoided by the utility when the utility purchases the electrical energy rather than producing the electrical energy. (underlining added)

The commission's determination of the just and reasonable rate shall be accomplished by establishing a methodology that removes or significantly reduces any linkage between the price of fossil fuels and the rate for the nonfossil fuel generated electricity to potentially enable utility customers to share in the benefits of fuel cost savings resulting from the use of nonfossil fuel generated electricity. As the commission deems appropriate, the just and reasonable rate for nonfossil fuel generated electricity supplied to the public utility by the producer may include mechanisms for reasonable and appropriate incremental adjustments, such as adjustments linked to consumer price indices for inflation or other acceptable adjustment mechanisms.

With Act 50, HRS §269-27.2(c) was revised to delete the second paragraph (beginning with "In the exercise of its authority..." and ending with "...rather than producing the electrical energy.") In addition, HRS §269-91 was revised by amending the definition of "cost-effective" to read: "Cost-effective" means the ability to produce or purchase electrical energy or firm

capacity, or both, from renewable energy resources at or below avoided costs or as the commission otherwise determines to be just and reasonable consistent with the methodology set by the public utilities commission in accordance with section 269-27.2. (underlined language added)

Therefore, with the enactment of Act 50, the Commission gained the authority to establish that the rate for purchase of electricity by a public utility may be more than one hundred per cent of the cost avoided by the utility, provided that the rate of purchase is just and reasonable. Consequently, the utility's avoided cost is no longer a cap on the rate of purchase.

#### Avoided Cost Calculation Methodology

Avoided costs have typically been determined using a resource-in/resource out methodology as described in Appendix B, "Avoided Cost Methodology," of HECO's Electric Utility System Cost Data report, filed with the Commission on November 26, 2008, in accordance with the Commission's Rule 6-74-17<sup>1</sup>. Avoided energy costs are typically calculated using a similar Non-Utility Generation ("NUG")-in/NUG-out methodology as described in the Updated Stipulation to Resolve Proceeding, dated December 29, 2006, in Docket No. 7310, and approved by the Commission's Decision and Order No. 24086, dated March 11, 2008.

To employ the resource-in/resource-out or NUG-in/NUG-out methodology, a base plan (alternatively called "reference" or "benchmark" plan), needs to be established. The base plan needs to identify parameters such as (1) specific timing and size (in MW) of each resource addition, (2) specific operating and maintenance characteristics, such as energy output profiles,

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<sup>1</sup> The "Avoided Cost Methodology" was also provided in Appendix B of HELCO's Electric Utility System Cost Data report, filed with the Commission on August 29, 2008, and in Appendix B of MECO's Electric Utility System Cost Data report, filed with the Commission on September 30, 2008.

efficiency profiles, and maintenance requirements, of each resource addition, and (3) specific installed costs and operating costs of each resource addition.

The Commission has recognized in other types of proceedings that IRP plans are dynamic and not fixed plans. For example, the resource plan used to compute avoided costs is not necessarily the utility's approved IRP plan, but is its most current resource plan, which takes into account current circumstances such as those that are reflected in an IRP plan evaluation, or a biennial PURPA data filing. (See, e.g., Docket No. 97-0102, Decision and Order No. 16717 (November 25, 1998), page 7.) This is consistent with the approach taken in other jurisdictions. (See, e.g., *Re Houston Lighting & Power Co.*, 158 P.U.R.4th 335, 340-41, 348 (Texas P.U.C. 1994).) [Ref: HELCO IRP-3, page 8-38]

The determination of avoided costs is case-specific. For example, the analysis in developing HELCO's third major integrated resource plan ("HELCO's IRP-3") indicated that a geothermal resource in the 2022 timeframe was the cost-effective supply-side selection. For the purposes of determining avoided costs for renewable resources, the geothermal unit may be used as a "benchmark resource." Under circumstances, where use of this particular resource results in negative avoided energy costs<sup>2</sup> for the renewable resource for which avoided costs are being determined, an alternative resource, such as a biofueled simple cycle combustion turbine, may be considered. [Ref: HELCO IRP-3, page 8-28, footnote 37]

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<sup>2</sup> Negative avoided energy costs result when a firm capacity renewable resource that has no fuel costs is deferred by installing another firm capacity resource ahead of the firm capacity renewable resource such fuel costs are incurred where they would not otherwise have been incurred. For example, suppose for illustrative purposes a 10 MW geothermal resource, which has no fuel cost, is originally targeted for installation in 2020 to satisfy firm capacity needs and would produce 80,000 MWh of energy in that year. Suppose further that in the alternative a 10 MW biomass resource, which has a fuel cost, is installed in 2020 such that the installation of the 10 MW geothermal resource can be deferred. Therefore, in the reference case, no fuel costs are incurred for the 80,000 MWh served by the geothermal resource. In the alternate case, with the biomass resource, fuel costs would be incurred for the 80,000 MWh served by the biomass unit. Therefore, since fuel costs would be incurred in the alternate case where none would have been incurred in the reference case, negative avoided energy costs would result.

In cases where the specific resource or characteristics of the resource are not known, a proxy unit, such as a combustion turbine may be used to represent the resource in the plan.

Avoided costs may also be determined from the costs the utility would incur if it installed a renewable resource itself.

One of the objectives in meeting consumer energy needs is to increase the proportion of renewable energy in meeting those needs, not to displace one type of renewable energy for another. If generating units utilize biofuels, those biofuel costs may be considered costs that cannot be avoided by energy generated by another renewable resource (e.g., wind or solar) that does not consume fuel.

Avoided costs may also be established through a competitive bidding process where the lowest bid may be considered the avoided cost, all other factors being equal.

### Considerations

The Commission's Framework for Competitive Bidding, issued by Decision and Order No. 23121, on December 8, 2006, in Docket No. 03-0372, states that "competitive bidding, unless the Commission finds it to be unsuitable, is established as the required mechanism for acquiring a future generation resource or block of resources, whether or not such a resource has been identified in a utility's IRP." Therefore, it may not be possible to identify specific resources that will be added in the future because the determination of the resources to be added will be the result of future competitive bidding processes.

The Hawaiian Electric Companies' proposed Clean Energy Scenario Planning ("CESP") framework ("CESP Framework"), submitted to the Commission and other parties as Attachment A of the Preliminary Statement of Position filed on October 2, 2009 in Docket No. 2009-0108, envisions that a reasonable number of CESP scenarios will be analyzed and developed to reflect

a range of possible energy-related policy choice and risks facing the utility systems and citizens.<sup>3</sup> In addition, the Hawaiian Electric Companies propose to submit a CESP Action Plan that will identify the steps the Hawaiian Electric Companies plan to take to meet the goal of CESP. In the Hawaiian Electric Companies' proposal, the goal of CESP is to "develop CESP scenarios that will provide high level guidance on a long term (10-20 years) direction, which will then be utilized to develop a CESP Action Plan for near term initiatives (5 years), balancing how the utility will meet clean energy objectives, customers' expected energy needs, and protecting system reliability at reasonable costs under various scenarios."<sup>4</sup> This is in contrast to the integrated resource planning ("IRP") process, in which the Hawaiian Electric Companies developed specific long-term resource plans that identified the specific resources and timing of addition of those resources, at least in the first three major IRP cycles.

Given that (a) it may not be possible to identify specific resources that will be added in the future because the determination of the resources to be added will be the result of future competitive bidding processes, and (b) the Hawaiian Electric Companies' proposed CESP process will result in a proposed action plan rather than a specifically defined resource plan, the base or reference plan to be used in determining avoided costs through the resource-in/resource-out methodology, may need to rely on assumptions as to the utilities' most current resource plans. In addition, as explained above, the reference resource plan may need to be composed of proxy units, such as biofueled combustion turbines. Finally, alternative means of determining avoided costs, such as from the costs the utility would incur if it installed a renewable resource itself or from the low bid in a competitive bidding process, as explained earlier, may be

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<sup>3</sup> Section III.D.1.b. of the Hawaiian Electric Companies proposed CESP Framework.

<sup>4</sup> Section II.A. of the Hawaiian Electric Companies proposed CESP Framework.



employed such that the resource-in/resource-out methodology, which relies on reference and alternate long-term resource plans, need not be used.

# Kauai Island Utility Cooperative

KIUC-HECO-IR-1

Ref: HECO Companies' Preliminary SOP, Pages 24-27.

In its Preliminary SOP, the HECO Companies states, in relevant part:

The Hawaiian Electric Companies are also adding two new planning initiatives to the Proposed CESP Framework: Renewable Energy Zones ("REZ") and Locational Value Maps ("LVM"). The REZ is proposed to identify areas that contain significant renewable energy resource potential and identify the possible transmission infrastructure required to integrate the renewable energy resources in the REZ.

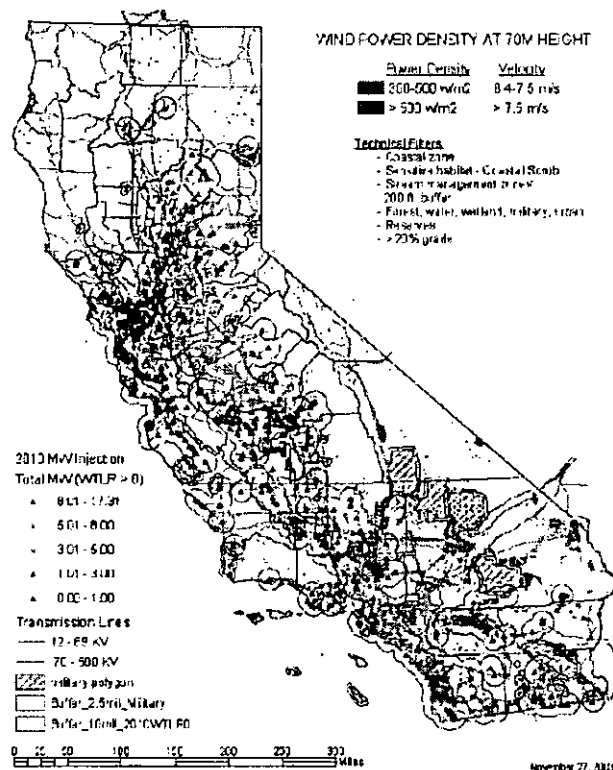
The Locational Value planning process developed as part of the California IAP has helped to shape the development of "the lowest hanging fruit" for California utilities to tap in-state resources and local generating resources that alleviate pockets of distribution and sub-transmission congestion. This Locational Value approach has also been adopted by states like New York with limited land for developing large renewable resources (vs. a REZ). Thus, the LVM planning concept provides a more detailed level of planning that integrates large REZ but also enable [sic] the maximization and siting of distributed resources via AMI, DSM and future smart grid community programs onto the grid.

- a. Please provide a more detailed description of the Locational Value planning process developed as part of the California IAP, together with any documentation that could provide a further understanding of the process developed in California.
- b. Please provide a more detailed description of the Locational Value approach adopted in New York, together with any documentation that could provide a further understanding of the process developed in New York.
- c. Please describe how the Locational Value approach adopted in New York differs, if at all, from the process developed as part of the California IAP.
- d. How do the HECO Companies plan to utilize the California and New York plans and processes to make it specific to and apply to the State of Hawaii and/or each particular island?
- e. Please provide a copy of an LVM that the HECO Companies have or would plan to use as a format in developing their LVM.
- f. Please explain what process the HECO Companies would plan to follow within the context of a CESP framework for revising or updating its REZ and LVM designations from time to time.
- g. Should the CESP Framework be made broad enough to allow for the discontinuance or non-applicability of REZs or LVMs for a particular island or islands? Please explain why or why not

Hawaiian Electric Companies' Response:

The purpose of the California IAP was to assess the impact of integrating RPS level renewable resources onto the California ("CA") grid. The process involved running power flow analysis for the CA system identifying major transmission infrastructure needs and renewable resources within the vicinity of the transmission or sub-transmission substations. Utilizing GIS analysis tools, Locational Value Map ("LVM") for various renewable resources were generated combining the results of the transmission models with respective renewable resources being studied as shown below.

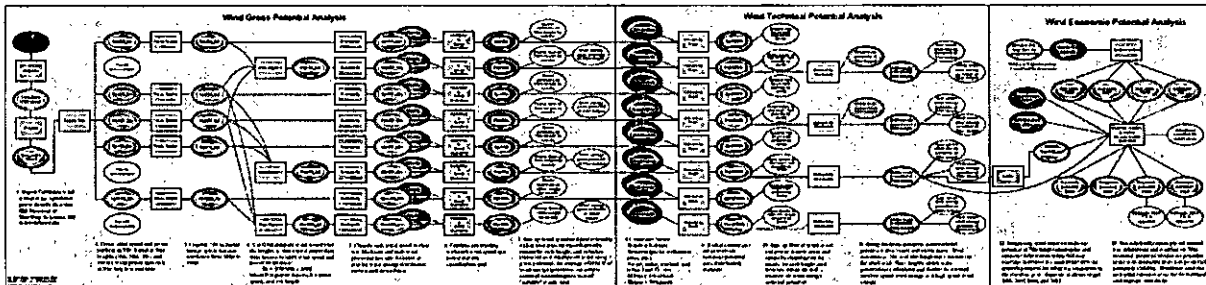
**Figure 8. Wind Resource Areas Relative to Key Substations with Buffer Zones**



Wind example: <http://www.energy.ca.gov/2005publications/CEC-500-2005-107/CEC-500-2005-107-SD.PDF>.

The LVM is an analytical tool for visually combining the technical or economic potential of renewable resources with electrical transmission modeling to assess the value of adding renewable resources in that region to improve electrical reliability. Flow chart below provides the process flow for developing such a map.

**GIS Support for California Renewable Energy Strategic Value Analysis (SVA)**  
Wind Speed and Power Density Surface Model for California Wind Energy Potential Assessment



[http://securegis.ucdavis.edu/Piermap/wind/poster/windmodel\\_chart17.pdf](http://securegis.ucdavis.edu/Piermap/wind/poster/windmodel_chart17.pdf)

The application of the Locational Value process was conducted under the California IAP and was also documented as part of the Strategic Value Analysis which developed the “location benefit” evaluation process. References can be found on the California Energy Commission’s website.

Summary of Goals: <http://cwec.ucdavis.edu/forum2002/proceedings/sethi-17Dec02.pdf>

Geothermal example: <http://www.energy.ca.gov/2005publications/CEC-500-2005-105/CEC-500-2005-105-SD.PDF>

Wind example: <http://www.energy.ca.gov/2005publications/CEC-500-2005-107/CEC-500-2005-107-SD.PDF>.

Reference on Industry Website

<http://www.powerworld.com/Resources/RenewableEnergy.asp>

[http://www.esri.com/mapmuseum/mapbook\\_gallery/volume20/education4.html](http://www.esri.com/mapmuseum/mapbook_gallery/volume20/education4.html)

For California, the LVM provided a visual analysis tool to link areas on the electrical system that have major impacts or congestion “hotspots” with renewable resources having technical potential within a certain defined region in proximity to the “hotspot”. As a result, this process provided stakeholders a sense of locations of benefit to further develop renewable projects. The results are continuing to be used for a number of follow-on efforts including the AB1613 investigating a FTT for Combine Heat and Power (CHP), Regional Integration of Renewables led by PG&E ([www.pge.com/rir](http://www.pge.com/rir)) and the CPUC Green House Gas Modeling effort ([www.ethree.com/GHG/18 Geothermal Assumptions v5.doc](http://www.ethree.com/GHG/18%20Geothermal%20Assumptions%20v5.doc)).

- a. For New York (“NY”), the State Energy Research and Development Authority (“NYSERDA”), has employed similar approach of combining renewable resource data with geographic visualization to compare sites and evaluate benefits that have been used for Wind, Biomass, DG-CHP and other resources. They reference these as “location emphasized” versus locational value. Please see [www.nyserda.org](http://www.nyserda.org) for more information.
- b. Conceptually the approach to use GIS tools to overlay transmission and renewable resource data and create analytical maps is similar for CA and NY. Scenarios used to run the transmission simulation, T&D infrastructure and renewable resources are different based on the RPS drivers of each state. Economic metrics for determining value and assumptions in terms of MW and locations are also different.
- c. The Hawaiian Electric Companies do not plan to utilize the CA or NY plans or processes themselves but plan to develop a process that would provide an information visualization tool for each island system to display the relative loading of distribution circuits as guidance for developers on potential interconnection challenges.
- d. As stated in the Hawaiian Electric Companies’ Preliminary Statement of Position (“PSOP”),

Attachment A, page 20, Item IV.F.1., Locational Value Maps will identify geographic areas of distribution system growth within the next 3-5 years where distributed resources and energy efficiency could be beneficial within the existing transmission and distribution system limits. Sample maps are currently being developed across the Hawaiian Electric Companies and are planned for completion by the end of this year. Also discussed on page 27 of the Hawaiian Electric Companies' PSOP, is that the initial LVM efforts will integrate "longer-term customer load forecasts, coupled with distribution level planning and resource needs....[to] provide more robust foresight to plan customer choice options under NEM, FIT, and PV-Host and future DSM programs to encourage energy efficiency."

- e. The Hawaiian Electric Companies have not formally designated a timeframe for updates for the REZ or LVM effort. Act 155 signed into law on June 25, 2009, requires the Energy Resources Coordinator (within DBEDT) to develop renewable energy zones ("REZ"). Before the signing of Act 155 into law, the Hawaiian Electric Companies included REZ to be the responsibility of the utility as part of the CESP process. Currently, the REZ process is being developed by DBEDT, with input from the Hawaiian Electric Companies and others. The process has not been finalized. Please see the Hawaiian Electric Companies' response to COUNTIES-HECO-IR-1 for more information regarding REZ.

In regards to the LVM, location specific data on the distribution system is constantly changing in real time. At minimum, updating the LVM would be coordinated with the CESP process; i.e., as part of the major CESP filing and updated in between the cycles as part of the evaluation report.

- g. The Hawaiian Electric Companies believe that the CESP framework requirements should be broad enough to allow each utility to develop the REZ and LVM appropriately to meet its

island needs. Discontinuance or non-applicability of the REZ and LVM could be addressed with a waiver request per Section III.D.5 of the Proposed CESP Framework or through refinements of defining the requirements in the framework.



DBEDT

DBEDT-HECO-IR-1

Ref:

Has HECO paid any intervenor funding under the current Integrated Resource Planning (IRP) framework? If yes, please provide the amounts paid for each company's IRP docket (HECO, HELCO, MECO ) .

Hawaiian Electric Companies' Response:

The Natural Resources Defense Council ("NRDC") filed an application on April 21, 1995 for intervenor funding in Docket No. 7257, Hawaiian Electric's IRP-1, filed July 1, 1993. By Order No. 16252, filed March 19, 1998, the Commission approved NRDC's application for intervenor funding in the amount of \$19,803.

The Hawaii Renewable Energy Alliance ("HREA") filed its Request for Intervenor Funding on June 16, 2005 in Docket No. 99-0004, Maui Electric's IRP-2, filed May 31, 2000. By Order No. 21995, filed August 29, 2005, the Commission dismissed as untimely HREA's Request for Intervenor Funding.

DBEDT-HECO-IR-2

Ref.: HECO's PSOP, Page 17.

Please explain the differences between planning "scenarios" and planning "assumptions" as used in HECO's proposed CESP framework.

Hawaiian Electric Companies' Response:

Please see the Hawaiian Electric Companies' response to CA-HECO-IR-1.

DBEDT-HECO-IR-3

Ref.: HECO's PSOP, Page 18.

- a) Please define what HECO exactly means by "near-term" and "long-term" as used in the phrase "... the focus of the proposed CESP is on the near-term since the long-term initiatives would likely be changed..."
- b) Please explain what HECO means by "The utilities, through modeling software will then test the cost effectiveness of the energy and demand savings provided by the third-party administrator," Please explain why the utilities, rather than the third-party administrator should be performing this cost-effectiveness test.
- c) Please explain how the results of the cost effectiveness analysis will meet the goal established by the Energy Efficiency Portfolio Standards (EEPS ).

Hawaiian Electric Companies' Response:

- a. The past IRP processes evaluated long range plans over a 20 year planning horizon and a program implementation schedule or action plan covering the first 5 years of the planning horizon, similarly, the Hawaiian Electric Companies generally refer to "near-term" as the next 5 years and "long-term" as the next 20 years. On page 4 of Attachment A to the Hawaiian Electric Companies' Preliminary Statement of Position ("PSOP"), these time horizons are defined in the goal of clean energy scenario planning.
- b. As explained in Hawaiian Electric Companies' response to CA-HECO-IR-4, the cost effectiveness of demand-side management programs are envisioned to be the same as what was previously done in the IRP process. The Hawaiian Electric Companies developed the Proposed CESP Framework without knowing what the role of the third-party administrator would be in the future planning process and proposed to perform the cost effectiveness tests of the energy efficiency programs in a coordinated effort with the third-party administrator. If the third-party administrator is capable of performing cost-effectiveness tests on their own, then that could be an option for consideration in the future.

- c. At this time, it is unclear what role, if any, the Hawaiian Electric Companies have in the CESP process with determinations of meeting EEPS goals by a third-party. However, cost effectiveness analysis of energy efficiency programs can provide valuable information the cost of compliance with EEPS and in considering inclusion of energy efficiency DSM in excess of yet-to-be defined intermediate EEPS goals. The Hawaiian Electric Companies believe that the details of how the EEPS goals will be achieved should be determined during of the CESP process and not by the framework.

DBEDT-HECO-IR-4

Ref.: HECO's PSOP, Attachment A, Pages 2-3.

- a) Please provide the "utility's clean energy objectives" as used in the definition of an "Action Plan".
- b) Does HECO agree that the definition of demand-side management programs should include rate design or rate initiatives? Please explain why or why not.
- c) Please define what is meant by "small -scale electric generating technologies" as used in the definition of "Distributed Generation."
- d) Please explain what is meant by the "existing transmission and distribution system limits" as used in the definition of the "Locational Value Map" (LVM).
- e) Please provide a definition of "smart grid" as used or referred to in HECO's PSOP (page 15; Attachment A, page 10).

Hawaiian Electric Companies' Response:

- a. Hawaiian Electric Companies' Preliminary Statement of Position ("PSOP"), Page 2, recognizes that the energy planning and implementation landscapes have dramatically changed since 1992, and that the policy inputs into the planning process now include Renewable Portfolio Standards, Energy Efficiency Portfolio Standards, Net Energy Metering, Feed-In Tariffs, Transfer of Energy Efficiency Demand-Side Management ("DSM") Programs to a Third-Party Administrator, PAYS Pilot Act 240, Green House Gas reduction requirements, and Policies and Tariffs encouraging Distributed Generation.

The Utility's clean energy objectives are, to be in compliance with each of the policies above, and with all other existing and future initiatives, policies, regulations, and legislation related to clean energy, such as the Hawaii Clean Energy Initiative and Hawaii Energy Agreement, while also meeting customers' expected energy needs and protecting system reliability at reasonable costs.

- b. The Hawaiian Electric Companies differentiate between Energy Efficiency (EE) DSM programs and Demand Response DSM programs. EE DSM programs promote the

customer's use of energy efficiency, resulting in a reduction of energy (kilowatthour) consumption. Demand Response DSM programs, on the other hand, either involve 1) offering the customer a financial incentive to allow Hawaiian Electric to turn off customer equipment as deemed necessary (i.e., Hawaiian Electric's current load management programs: Commercial and Industrial Direct Load Control (CIDLC) Program, and Residential Direct Load Control (RDLC) Program); or, 2) offering rate designs such as dynamic pricing, which allows prices to change from normal tariff rates as the system conditions change, and encourages customer curtailment of load through price incentives when there is insufficient generation to meet a projected peak demand period. In either case, the objective of demand response programs is to reduce or curtail customer demand at certain times to impact power (kilowatt) consumption with little or no impact to overall customer energy (kilowatthour) use over a longer period of time.

Therefore, the Hawaiian Electric Companies considers rate designs or rate initiatives more as a Load Management initiative rather than an EE DSM initiative. Rate designs or rate initiatives are not intended to reduce load but to "shift load" and smooth out system peaks, by offering the customer incentives to use electricity, but at a different time, to support system conditions.

- c. The definition of "Distributed Generation" in Hawaiian Electric Companies' PSOP, Attachment A, page 2, is the definition directly from the Background discussion on pages 1-2 of the Commission's Decision and Order No. 22248 in Docket No. 03-0371.
- d. Please see the Hawaiian Electric Companies' responses to KIUC-HECO-IR-1, COUNTIES-HECO-IR-2, LOL-HECO-IR-11, and BP-HECO-IR-7 related to Locational Value Maps.
- e. "Smart Grid" is one of the initiatives of the HCEI Energy Agreement between the State of

Hawaii (Governor Lingle and DBEDT), the Consumer Advocate, and the Hawaiian Electric Companies, and is described on pages 31-32 of the document. As a signatory of the Energy Agreement, the Hawaiian Electric Companies generally defines a smart grid as infrastructure that “builds upon existing utility generation, transmission and distribution, using automation, communications, analytics and controls to operate the grid more efficiently, reliably, and safely, and improve the integration and use of intermittent renewables, demand-side and decentralized sources.” Please see Hawaiian Electric Companies’ response to LOL-HECO-IR-7 for additional information.



DBEDT-HECO-IR-5

Ref.: HECO's PSOP, Attachment A, Pages 5-6.

- a) Please explain what is meant by "any (Commission) approval given to the CESP process will apply only to high level planning issues" as stated in item #3 under Section II.D Commission's Responsibility.
- b) Please specify what analysis, data, and studies and or reports will be included in the "individual applications for programs" that would require specific Commission approval.

Hawaiian Electric Companies' Response:

- a. Please see Hawaiian Electric Companies' response to HSEA-HECO-IR-6 regarding the intent of "high level planning". Item 3 under Section II.D is meant to show the relationship between the Commission's approval and the concept of "high level guidance" as defined in the Goal of Clean Energy Scenario Planning which is based on high level planning analyses.
- b. Depending on the specific project or program application being filed for PUC approval, the Hawaiian Electric Companies will provide all pertinent supporting analysis, data, studies, and reports required to support approval of the application. Hawaiian Electric Companies' response to CA-HECO-IR-3 also confirms the Hawaiian Electric Companies intent to provide a discussion on how the project or program application has been coordinated with the CESP process and CESP Action Plan or updated evaluation, if applicable.

DBEDT-HECO-IR-6

Ref.: HECO's PSOP, Attachment A, Pages 10 -12.

- a) Please specify what analysis will be filed with the CESP Action Plan as indicated in Item 2.g under Section III.D Submissions to the Commission, Attachment A, page 10.
- b) Please provide HECO's estimate of the extent or amount of projects, programs, specific capital expenditures projects, and purchased power from qualifying facilities and independent power producers that may not have to be included or may not be identified or specifically discussed in the CESP process - as indicated in item #7 under Section III.D - Submissions to the Commission, Attachment A, page 12. Please explain whether this provision will add or take away from the value of the resulting Action Plan.
- c) Does HECO intend to "analyze in the CESP process", the net energy metered systems and renewable energy system procured through the feed -in tariffs and interconnected at the distribution system? Please explain why or why not.

Please explain what HECO means by, and the basis of, the last sentence in item 7 under Section III.D, Attachment A, Page 12.

Hawaiian Electric Companies' Response:

- a. The Hawaiian Electric Companies envision the CESP filing to the Commission to include a report describing the entire CESP process, including, but not limited to, how the planning assumptions and forecasts were developed, how the scenarios were developed and selected, the results of the scenario analyses including the resource plans developed for each scenario, and the process/analysis used to develop the Action Plan from the evaluation of each scenario evaluated. The minimum requirements for this report are shown in Section III.D.1.a, page 10 of Attachment A of the Hawaiian Electric Companies' Preliminary Statement of Position. The Hawaiian Electric Companies believe that the specific analysis and/or process used to develop the Action Plan should be determined during the actual CESP process and not for the development of the framework requirements. Page 10 of the Commission's Decision and Order No. 11523 in Docket No. 6617 establishing the IRP Framework states that "[t]he framework prescribes in general what the utilities are required

to do and the factors to be considered in developing their respective integrated resource plans. It outlines the commission's minimum expectations concerning the utilities' plans and planning process. Within these general guidelines, the utilities are free to fashion their processes and develop their plans as they see fit, subject to the advice and input of the utilities' integrated resource advisory groups." The Hawaiian Electric Companies believe this same view should apply to the development of the CESP framework.

- b. The Hawaiian Electric Companies cannot provide an estimate for an undefined CESP Action Plan and would like to clarify that the referenced Section III.D.7 was an existing provision of the IRP Framework that was updated to reflect changes since the establishment of the IRP Framework and to the proposed CESP framework.
- c. The Hawaiian Electric Companies intend to evaluate the net energy metering ("NEM") limits in the same manner as the parties agreed in their Stipulation filed on September 17, 2007 and approved by the Commission's Decision and Order No. 24089. As shown in the Hawaiian Electric Companies' Preliminary Statement of Position, Attachment A, page 19, under Section IV.D.2, the Hawaiian Electric Companies intend to evaluate the Feed-in Tariff ("FIT") provisions in a similar manner as the NEM limits. The Hawaiian Electric Companies envision that the forecast for NEM and FIT would be grouped together with other distributed generation to develop a "Distributed Generation Forecast" that could be used to develop the CESP scenarios. Please see Hawaiian Electric Companies' response to COUNTIES-HECO-IR-2.

DBEDT-HECO-IR-7

Ref.: HECO's PSOP, Attachment A, pages 16-17.

Does HECO agree that providing incentives to the PBF Administrator is a contractual matter between the Commission and the PBF Administrator? If no, please explain why not. If yes, please explain why HECO's proposed CESP framework should cover this matter as provided in Section F.2, pages 16-17 of Attachment A.

Hawaiian Electric Companies' Response:

Yes, the Hawaiian Electric Companies agree that providing incentives to the PBF Administrator is a contractual matter between the Commission and the PBF Administrator. The provisions in the Hawaiian Electric Companies' Proposed CESP Framework related to incentives are from the existing IRP Framework and were updated to reflect the change in control of the energy efficiency programs from the Hawaiian Electric Companies to the PBF Administrator.

DBEDT-HECO-IR-8

Ref.: HECO's PSOP, Attachment A, pages 18-19.

- a) Please explain how HECO will use the "distributed generation forecasts" in the CESP planning process, besides its explicit intent to use such forecasts to "reexamine the NEM limits, and the FiTs provisions" as stated in Section IV.D, Attachment A, pages 18-19. Please explain how this proposed provision will substantively add to HECO's proposed CESP Framework to achieve HECO's "clean energy objectives."
- b) What criteria will HECO use to "develop a forecast of the amount of distributed generation that could be installed by utility customers, third parties, or the utility over the planning horizon" as stated in Section IV.D.1, Attachment A, page 18.
- c) How does HECO plan to allow the public, including outside experts and other non-utility stakeholders, to participate and provide input in this forecasting process, not only for distributed generation but for all the other forecasts and analysis required in the planning process?

Hawaiian Electric Companies' Response:

- a. Please see Hawaiian Electric Companies' response to DBEDT-HECO-IR-6, subpart c. In addition, distributed generation forecasts can be used to evaluate such planning issues, but not limited to, impact forecasts of loads to be served by the utility (as distributed generation may be in the form of customer-owned, load reducing, non-exporting resources), calculations of RPS for renewable energy distributed generators, and total emission calculations (including GHG emissions) for combustion based distributed generation.
- b. The Hawaiian Electric Companies envision that all the forecast assumptions would be developed collaboratively between the utility, Advisory Committee, and outside experts during the CESP process. Page 20 of the Hawaiian Electric Companies' Preliminary Statement of Position describes different methods that were used in past IRP processes.
- c. Please see the response to subpart b. above.

DBEDT-HECO-IR-9

Ref:

Please explain how HECO intends to use the resulting Action Plan(s) from the CESP planning process in its business operation and management.

Hawaiian Electric Companies' Response:

The intended use of the Action Plan resulting from the CESP planning process would not be different from the past IRP processes. As stated in the Hawaiian Electric Companies' Proposed CESP Framework, Attachment A, page 12, Section II.D.7, "[t]he CESP Action Plan approved by the Commission shall provide guidance for all utility expenditures for capital projects, purchased power, and demand response programs, and the PBF Administrator's expenditure for energy efficiency programs." Section II.D.2 on pages 10-11 of Attachment A also specifies the minimum requirements of the Action Plan that the Hawaiian Electric Companies should submit to the Commission.

# Counties of Hawaii, Kauai, and Maui

COUNTIES-HECO-IR-1

REF: HECO PSOP, Renewable Energy Zones (REZs), Page 24

- a. Please provide a detailed example of how a REZ would be established for one or more hypothetical wave farms off of the coast of the island of Maui. Please describe how factors such as environmental impacts, visual impacts, recreational impacts, cost impacts, public input, and all other factors will be addressed.
- b. Please provide a map for the above hypothetical example.
- c. Please explain how the above hypothetical REZ will be incorporated into all relevant aspects of the IRP process, including but not limited to, resource assessments, transmission planning, competitive bidding, and advisory group input.
- d. Please explain how the above hypothetical REZ would facilitate the planning and development of wave energy projects within said REZ.
- e. Please describe any other benefits associated with the establishment of the above hypothetical REZ or with REZs in general, if any.

Hawaiian Electric Companies' Response:

- a. Act 155 signed into law on June 25, 2009, requires the Energy Resources Coordinator (within DBEDT) to develop renewable energy zones ("REZ"). Before the signing of Act 155 into law, the Hawaiian Electric Companies included renewable energy zones ("REZ") to be the responsibility of the utility as part of the CESP process. Currently, the REZ process is being developed by DBEDT, with input from the Hawaiian Electric Companies and others. The process has not been finalized. To date, the REZ process is envisioned to be a high level screening analysis incorporating renewable energy resource data, land use and ownership data, and utility transmission data. In the REZ process, DBEDT and others will likely identify those areas where renewable energy resources have high potential for power generation, where land use designations are conducive to development of those particular resources, and where environmental and sociocultural impacts are lower. In accordance with Act 155, DBEDT would be responsible for handling the public input process for REZ.
- b. As stated in response to part a. above, the REZ process has not been finalized so there are no



REZ maps developed yet. In the Hawaiian Electric Companies' Preliminary Statement of Position, pages 25-26, there are references to similar types of REZ efforts on the continental U.S. The REZ for Hawaii should be tailored to our specific needs and benefits but the references could be reviewed to give some perspective on the concepts of REZ.

- c. There is uncertainty in when the CESP process would begin and when the REZ would be completed by DBEDT. If the REZ is completed before the CESP process begins, then REZ could be incorporated into the CESP process as follows:

- The resources in the REZ could be used as inputs for consideration in the CESP scenarios by providing the technology, size, timing of development, and cost information of renewable resources in a REZ required for scenario analysis.
- The Advisory Committee, including the utility, could decide to include some or possibly all of the resources in the REZ as part of the CESP scenarios.
- If resources in the REZ are part of a CESP scenario plan, then any needed transmission additions to those resources would be evaluated as part of the scenario analysis.
- The Action Plan, developed through discussions with the Advisory Committee, could include issuance of a Request for Proposal for resource(s) in the REZ that were evaluated in the CESP scenario(s).
- DBEDT would facilitate permitting and development of projects in the REZ, just as it would for renewable projects in non-REZ areas. The transmission information resulting from the CESP scenario analysis could then be incorporated into the REZ.

If the CESP process begins before the REZ is completed, then REZ could be coordinated with the CESP as follows:

- The renewable resources evaluated in the CESP process would be included in the REZ.

- Any transmission information linked to renewable resources that resulted from the CESP scenario analysis would be included in the REZ.
  - If the utility's CESP Action Plan includes issuance of a Request for Proposal for resource(s) in the REZ that were evaluated in the CESP scenario(s), then DBEDT would facilitate permitting and development of those projects.
- d. Act 155 requires specific duties of the Energy Resources Coordinator to “[d]evelop and recommend incentives, plans, and programs to encourage the development of renewable energy resource projects within the renewable energy zones”.
- e. The benefits of REZ, depending on exactly how and when the process is implemented and coordinated with the CESP process could be:
- project developers would have information on locations of viable renewable resources (i.e., land use and permitting issues factored in) to help in deciding what kind of projects and where they want to invest their efforts in;
  - project developers would have a general idea of the transmission infrastructure expansions or upgrades possibly required to integrate their project if in a designated REZ;
  - The REZ process is a systematic process lead by DBEDT which will look at a geographical region's potential to host renewable resources and plan infrastructure around all or part of that potential, rather than to plan infrastructure for each renewable project that may be sequentially proposed by a developer; and
  - DBEDT would be able to focus their permitting and project facilitation efforts to REZ sites.

COUNTIES-HECO-IR-2

REF: HECO PSOP. Locational Value Maps (LVMs) Page 26

- a. Please provide a detailed example of how a LVM would be established for a hypothetical resort area on the island of Maui, with distribution system infrastructure unable to accommodate planned resort expansions. Please describe how factors such as environmental impacts, cost impacts, public input, and all other factors will be addressed.
- b. Please provide a map for the above hypothetical example.
- c. Please explain how the above hypothetical LVM would be incorporated into all relevant aspects of the IRP process, including but not limited to, resource assessments, demand and resource forecasts, competitive bidding, and advisory group input.
- d. Please explain how the above hypothetical LVM would facilitate the installation of combined heat and power systems that could obviate the need for distribution system improvements.
- e. Please explain how the above hypothetical LVM would facilitate the installation of photovoltaic systems that could obviate the need for distribution system improvements (assume that the anticipated distribution system deficiencies occur during sunny days).
- f. Please describe any other benefits associated with the establishment of the above hypothetical LVM or with LVMs in general, if any.

Hawaiian Electric Companies' Response:

- a. As described in Hawaiian Electric Companies' response to KIUC-HECO-IR-1, Locational Value Maps ("LVM") is proposed to be an informational visualization tool for each island system to display the relative loading of distribution circuits as guidance for developers on potential interconnection challenges. The LVM would not be established for specific projects but is meant to provide island-wide information for project development. The environmental impacts, cost impacts, public input and other factors related to locations of renewable resource potential would be given consideration when creating the LVM but would not necessarily address the issues. Project developers using LVMs to guide marketing and development of their projects would need to address individual project impacts.
- b. Please see Hawaiian Electric Companies' response to KIUC-HECO-IR-1 for an example

LVM by California and New York.

- c. As stated in the Hawaiian Electric Companies' Preliminary Statement of Position, Attachment A, page 20, Item IV.F.1., Locational Value Maps will identify geographic areas of distribution system growth within the next 3-5 years where distributed resources and energy efficiency could be beneficial within the existing transmission and distribution system limits. The Hawaiian Electric Companies have not formally designated a timeframe for updates for the LVM effort. Location specific data on the distribution system is constantly changing in real time. At minimum, updating the LVM would be coordinated with the CESP process; i.e., as part of the major CESP filing and updated in between the cycles as part of the evaluation report. The Hawaiian Electric Companies envision that the LVM could be used both as an input and output to the CESP process. For example, initial LVM could be used to develop distributed generation ("DG") forecasts (including Combined Heat and Power ("CHP"), Feed-in-Tariff ("FIT") and Net Energy Metering ("NEM") as an assumption for CESP scenarios. The results of the various CESP scenarios would be used to develop the Action Plan. The resulting Action Plan may include transmission and distribution system upgrades or energy efficiency programs that could be used to update the LVM. The Advisory Committee would have the opportunity to provide input throughout the CESP process.
- d. The purpose of the LVM is to be an informational visualization tool that is envisioned to provide project developers with information to help with decisions on where to target their development. As discussed in response to subpart a. above, providing a display of the relative loading of distribution circuits could offer guidance for developers on potential interconnection challenges for specific locations. For example, if project developers see that

the south-west area X could benefit most from distributed generation and energy efficiency, they could focus their efforts in that area.

- e. Please see response to part d. above.
- f. Please see response to part d. above.

# Life of the Land

LOL-HECO-IR-6

Ref: [D]ue to legislative uncertainties, it has been very difficult for U.S. regulated utilities and public utilities commissions to incorporate GHG regulation into their long-range planning processes. pg 12

Is HECO asserting that ALL utilities have been unable to incorporate GHGE into their planning process, INCLUDING those lobbying Congress to strengthen the Waxman-Markey bill, that is, to impose tougher standards on utilities?

Hawaiian Electric Companies' Response:

The Hawaiian Electric Companies' Preliminary Statement of Position ("PSOP") filed October 2009 explains the objectives of Clean Energy Scenario Planning ("CESP") and how they differ from the objectives of IRP. On page 12 of the PSOP, Climate Change and Greenhouse Gas Regulation was included as one of the new initiatives implemented since 1992 that has significant impact on the utility's future planning.

Presently, the implementation process of Hawaii's Act 234 on GHG regulation is under development, and climate change regulations are currently being debated for potential lawmaking by Congress. With these uncertainties, the PSOP is not specifically stating that ALL utilities have been unable to incorporate GHG into their planning, nor is it stating that this includes those lobbying Congress to strengthen the Waxman-Markey bill. The PSOP is merely explaining that the proposed CESP process must accommodate uncertainties of key parameters such as climate change and greenhouse gas regulations by representing such uncertainties in scenarios to be considered in a CESP process.

LOL-HECO-IR-7

Ref: Hawaii, as a state, is blessed with an abundance of renewable energy resource options ranging from wind, solar, geothermal, biomass, wave/ocean, and biofuel options. However, to optimally avail ourselves of these resources, the maturity, compatibility and availability of these resources also needs to be considered, as we transform our existing grid to meet the clean energy goals safely and reliably. pg 14

Were not Hawaii Electric Industries (HEI) and Renewable Hawaii Inc (RHI) established to increase renewable penetration by expanding the existing grid rather than building a Smart Grid?

Hawaiian Electric Companies' Response:

Neither Hawaiian Electric Industries, Inc., parent company of Hawaiian Electric Company, Inc. and other subsidiaries, or Renewable Hawaii, Inc. (RHI), a subsidiary of Hawaiian Electric Co., Inc., have been involved in expanding existing grid equipment.

The Hawaiian Electric Companies would like to make it clear that a "smart grid" is not a separate grid from the existing grid. Rather, it builds upon the existing utility grid (generation, transmission and distribution) using technology to add or improve automation, communications, analytics , data collection and controls to operate the grid more efficiently, reliably, and safely, and enhance the integration and use of intermittent renewables, demand-side and decentralized sources.



LOL-HECO-IR-8

Ref: An interactive and smart grid of the future is being envisioned by many for the islands. pg 15

Should the CESP look at non Smart Grid Scenarios?

Hawaiian Electric Companies' Response:

National Regulatory Research Institute's (NRRI) CESP paper, page 6, states, "To develop scenarios that help decision making, we need to identify the uncertainties that are driving forces – uncertainties that make a significant difference to a scenario's story."

In general, such future uncertainties, which may include differing levels of smart grid enhancements and resulting resource impacts such as enablement of different forms of demand response programs, are the kinds of uncertainties that need to be considered in scenario development phases of a planning process. But the Hawaiian Electric Companies believe such determinations should be part of the CESP process and not a predetermined issue made part of a CESP framework.

LOL-HECO-IR-9

Ref: CESP scenario pg 17; Attachment A pg 4

Which of the following could be part of all of a scenario: (a) inter-island cable; (b) no inter-island cable; (c) imported biofuels; (d) no imported biofuels; (e) no biofuels; (f) no new centralized power; (g) renewable energy only; and (h) ocean thermal energy conversion?

Hawaiian Electric Companies' Response:

Each of the items listed in various combinations with each other and with other planning and decision uncertainties, could represent scenarios for evaluation in a Clean Energy Scenario Planning ("CESP") process. In addition, there are other factors that could also be considered to create additional scenarios. Since the creation of scenarios could be virtually unlimited, it is a very challenging process to select which scenarios captures future planning uncertainties that should be examined in depth in a CESP. As stated in the NRRI CESP paper, page 3, "Scenario planning does not identify the most likely future. Its purpose instead is to (a) acknowledge that uncertainties can drive the future onto very different paths, and then (b) examine those uncertainties and paths". The Hawaiian Electric Companies believe that the CESP framework should establish the mechanics of the planning process but not specify what or how many scenarios should be evaluated.

LOL-HECO-IR-10

Ref: "automatic approval" pg 22

Assuming that (a) automatic approval is part of the CESP and (b) the final plan may include items that were not initially identified and (c) there will be entities impacted by including those systems -- then (1) how should their interests be protected? (2) Should anyone who might be affected by any type of proposed system be allowed to intervene? (3) If so, when and under what conditions? (4) How many intervenors might intervene to protect all of the interests found in the final plan? (5) Should there be a time limit re how long the Commission takes to render a decision?

Hawaiian Electric Companies' Response:

Assuming that a Clean Energy Scenario Planning ("CESP") filing consisting of CESP Scenarios and an Action Plan is approved by the Commission either via approval or "automatic approval", we understand LOL's concern to be that the final Action Plan may include items that were not initially identified in the scenarios analyzed and there could be entities impacted by including those items.

As stated in the Hawaiian Electric Companies' Preliminary Statement of Position, Attachment A, page 6, Item II.D.3, "any (Commission) approval given to the CESP process will apply only to high level planning issues. Thus, the utility will file for Commission review and approval individual applications for programs or elements of the CESP Action Plan that requires specific Commission approval." The present PUC process for review and approval of individual projects is currently designed to protect the interests of affected parties, allow intervention, and any other public participation. The Commission will determine who can intervene and participate in the proceeding for individual PUC applications.

LOL-HECO-IR-11

Ref: The Hawaiian Electric Companies are also adding two new planning initiatives to the Proposed CESP Framework: Renewable Energy Zones ("REZ") and Locational Value Maps ("LVM"). The REZ is proposed to identify areas that contain significant renewable energy resource potential pg 24; Attachment A pg 3

Would a Renewable Energy Zone include areas where (a) the sun shines; (b) the wind blows; (c) the waves lap; and (d) where thermal differences occur? (e) Would REZ include rooftops? (f) Sides of buildings? (h) Could REZ for wind, wave and solar overlap? (h) Could a Locational Value Map be used to show that Campbell Industrial Park has way to much generation as opposed to load and that it is thus not the right geographic area to build more generation; (i) Should LVM be used for energy efficiency, renewable energy and/or fossil fuel generation; (j) If not for all types of generation, why not?

Hawaiian Electric Companies' Response:

Act 155 signed into law on June 25, 2009, requires the Energy Resources Coordinator (within DBEDT) to develop renewable energy zones ("REZ"). Before the signing of Act 155 into law, the Hawaiian Electric Companies included REZ to be the responsibility of the utility as part of the CESP process. Currently, the REZ process is being developed by DBEDT, with input from the Hawaiian Electric Companies and others. The process has not been finalized. To date, the REZ process is envisioned to be a high level screening analysis incorporating renewable energy resource data, land use and ownership data, and utility transmission data. Current discussions with DBEDT and other parties involved in the REZ concept development have identified that the REZ process will likely identify those areas where renewable energy resources are of high quality for power generation, where land use designations are conducive to development of those particular resources, and where environmental and sociocultural impacts are minimal. The Hawaiian Electric Companies would then use the REZ as input to the CESP process. Resources in the REZ could be evaluated in CESP scenarios to ensure that they are in locations and have the output characteristics that are of value to the utility. DBEDT will be handling the public

input process for REZ.

As stated in the Hawaiian Electric Companies' Preliminary Statement of Position, Attachment A, page 20, Item IV.F.1., Locational Value Maps will identify geographic areas of distribution system growth within the next 3-5 years where distributed resources and energy efficiency demand-side management could be beneficial within the existing transmission and distribution system limits. Since distributed generation could be provided by third parties, those generating resources could be fossil-fueled or renewable resources which are outside of the control of the utility. The Locational Value Maps are at the distribution level and are not intended to address the existing transmission and generation systems.

# Blue Planet Foundation

BP-HECO-IR-1

Ref.: Proposed CESP Framework<sup>1</sup>

The Proposed CESP Framework defines “Clean Energy Scenario Planning” as a “mandatory guide for the utilities.” Proposed CESP Framework at 1. Please clarify and explain the HECO Companies’ intended meaning and use of the term “mandatory guide” in this definition and in the context of the Proposed CESP Framework.

Hawaiian Electric Companies’ Response:

The terminology “mandatory guide” is from the last page of Decision and Order No. 11523 dated March 12, 1992, in Docket No. 6617 establishing the IRP Framework and states “[t]he framework is a mandatory guide for the utilities to follow.” Since the Proposed CESP Framework was based upon revising the IRP Framework, the Hawaiian Electric Companies assumed that the Proposed CESP Framework would follow the same requirement and simply added it to the definition. This was also discussed at the first technical session held on August 11, 2009. (See slide 2 of the presentation.)

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<sup>1</sup> See “A Proposed Framework for Clean Energy Scenario Planning” attached as Exhibit A to the Commission’s May 14, 2009 Order Initiating Investigation.

BP-HECO-IR-2

Ref.: Proposed CESP Framework

The Proposed CESP Framework states that the utilities may “at any time” revise or amend a CESP Action Plan and may request a waiver from the Commission from “any or all” of the framework provisions. Proposed CESP Framework at 10. Please describe and explain any and all bases or rationales in support of the foregoing proposal and clarify the HECO Companies’ position with regard to the relationship of the foregoing proposal to encouraging and supporting public participation in the planning process.

Hawaiian Electric Companies’ Response:

In regards to the issue of the utility being able to revise or amend its CESP Action Plan, this section of the proposed CESP framework is an update, of existing language in the current IRP Framework, replacing the word “IRP” with “CESP”. Please see page 16 of Attachment 2 in Exhibit A of the Commission’s Order in Docket No. 2009-0108 dated May 14, 2009 for the redline revisions made to the IRP framework to develop the proposed CESP framework.

In regards to the issue of the utility being able to request a waiver from the framework, this language was based upon statements in the Commission’s Decision and Order No. 11523 in Docket No. 6617 establishing the IRP framework, at page 11, and Decision and Order No. 13839 in Docket No. 7257 for Hawaiian Electric’s first IRP, at page 46.



BP-HECO-IR-3

Ref.: Preliminary Statement of Position of the HECO Companies filed October 2, 2009 ("HECO PSOP") at 11.

The HECO PSOP states that the utility's planning process "must now focus on how best to comply with RPS targets rather than answer the question of "how much renewable energy is appropriate," HECO PSOP at 11. Please clarify the HECO Companies' position with regard to whether the framework and planning process under consideration in this proceeding should consider and promote the acquisition of clean energy resources in amounts and/or at a rate that exceed that required to achieve compliance with the requirements of Part V of Chapter 269, Hawaii Revised Statutes, as amended (Hawaii RPS law).

Hawaiian Electric Companies' Response:

The CESP Framework should facilitate a CESP process that evaluates the mix of generating resources to meet each planning scenario established for the CESP process. This evaluation would not be limited to only including the minimum of renewable energy generation to comply with RPS requirements. An evaluation may identify a mix of generation resources for a scenario which exceeds a renewable energy percentage required by the RPS or achieves a renewable energy percentage prior to that required by the RPS law.

Such an evaluation of mix of resources and the resulting plans developed for each scenario should be determined during the CESP process as a collaboration among the stakeholders; i.e., the utility and Advisory Committee.

BP-HECO-IR-4

Ref.: HECO PSOP at 15.

Please identify and describe the alleged “new tools and planning capabilities” the HECO Companies state will be needed to “inform the utility on how to plan and manage the evolving grid.” HECO PSOP at 11. Please clarify the HECO Companies’ position as to whether the framework and planning process under consideration in this proceeding should consider and promote changes to existing bulk power reliability standards to enable the grid to accommodate additional intermittent renewable energy resources.

Hawaiian Electric Companies’ Response:

Most utility industry planning models, including those that the Hawaiian Electric Companies currently use, are based on “hourly” data. For example, the models would have data for the load to be served at 6:00 pm as 1,500 MW, the load to be served at 7:00 pm as 1,750 MW, etc. The models are not capable of evaluating intra-hour grid operations and related reliability and cost impacts. Intra-hour modeling is particularly important in understanding the impacts of and developing solutions for the integration of intermittent generation, such as wind and solar, where output of a generating unit can vary significantly in the seconds and minutes timeframe. The Hawaiian Electric Companies are exploring such intra-hour planning models or enhancements to existing planning models in an effort to address the technical challenges of integrating large amounts of intermittent renewable energy.

In addition, wind forecasting tools are an example of a “new” tool that the Hawaiian Electric Companies are exploring to also address the current operational challenges the existing wind resources on the HELCO and MECO systems face. The Hawaiian Electric Companies believe that the CESP process should address the technical challenges associated with accommodating large amounts of intermittent renewable resources since the various scenarios that should be analyzed would have to comply with RPS mandates as a minimum. The framework should

reflect compliance with RPS mandates as an objective, and in order for the Hawaiian Electric Companies to meet or exceed those targets the planning process would have to address the technical challenges for providing reliable service with resource portfolios with a large percentage of intermittent generation. The Hawaiian Electric Companies have been and will continue to work on finding solutions for integrating more renewable energy onto the systems reliably and it should be addressed in the CESP process.

BP-HECO-IR-5

Ref.: HECO PSOP at 17.

The HECO PSOP states that planning assumptions will include “desired levels of reliability [and] operational requirements and constraints[.]” HECO PSOP at 17. Please explain what is meant by this statement and clarify the HECO Companies’ position with regard to whether the framework and planning process under consideration in this proceeding should address alleged technical limits to the adoption of renewable energy.

Hawaiian Electric Companies’ Response:

It is the utilities’ responsibility and obligation to provide reliable service to its customers. In reference to the “desired levels of reliability”, the Hawaiian Electric Companies meant that future plans developed in a CESP process should target a generation reliability standard and evaluate the relative impact of a generation and demand-side resource portfolio on the reliability standard. There are many measures of generation planning reliability and one example is the reliability guideline of 4.5 years per day loss of load probability that is used for the Hawaiian Electric system on Oahu. In addition, to provide reliable operations there are operational reliability standards, such as minimum spinning reserve, minimum quick-load pick up, operating reserve requirements, and minimum number of online regulating units, as examples of requirements that must be set appropriately to reliably balance load and generation.

The Hawaiian Electric Companies believe that the CESP process should address the technical challenges of integrating large amounts of intermittent non-firm renewable generation faced by the Hawaiian Electric Companies as well as the rest of the utility industry but that it is unnecessary for the CESP Framework to specifically require this as it presupposes resources in resource plans. Instead, the Hawaiian Electric Companies affirm that the framework should reflect compliance with RPS, EEPS, and GHG mandates and in order for the Hawaiian Electric Companies to meet or exceed those targets, the planning process would have to address the

technical challenges for providing reliable service. The Hawaiian Electric Companies have been and will continue to work on finding solutions for integrating more renewable energy onto the systems reliably and it should be addressed in the CESP process.

BP-HECO-IR-6

Ref.: HECO PSOP at 21.

The HECO PSOP states the HECO Companies' concerns regarding an independent third party, and not the utility, conducting the planning process. HECO PSOP at 21. Please clarify the HECO Companies' position with regard to the use of an independent observer to monitor and oversee (rather than conduct) the planning process as conducted by the HECO Companies and stakeholders.

Hawaiian Electric Companies' Response:

The Hawaiian Electric Companies are open to the concept of a "neutral facilitator" as mentioned in the NRRI Paper as a means of addressing concerns over public participation and transparency in the process. In addition, the Hawaiian Electric Companies are open to the concept of an "independent observer" with a role similar to that of the independent observer under the Framework for Competitive Bidding as part of or in addition to the "neutral facilitator" role as a means to facilitate progress in a CESP planning cycle, obtain Commission guidance during the CESP process, achieve timely resolution to issues that may arise during the CESP process and avoid addressing such issues during the evidentiary hearing phase. The responses from the parties will help the Hawaiian Electric Companies in formulating a final position on this issue.

BP-HECO-IR-7

Ref.: HECO PSOP at 27.

Please clarify whether use of Locational Value Maps (“LVM”) in the planning process will (i) require the HECO Companies to incorporate distribution system planning into the planning process, or (ii) cause the HECO Companies to develop, in the planning process, proposed modifications to the design or operation of the distribution system, which modifications are intended to enable distribution circuit penetration of intermittent renewable distributed generation in excess of current distribution circuit penetration limits.

Hawaiian Electric Companies’ Response:

The Hawaiian Electric Companies are not proposing to incorporate distribution system planning into the CESP process but to provide general distribution level information and trends through the locational value maps. Distribution planning generally concentrates on the near-term (within the next 3 years) for individual circuits based upon frequent changes in plans for new or expanded distribution service. Distribution circuit loading changes are highly dynamic and have many complexities and uncertainties that can affect the loading of specific circuits from year to year. Loading levels and changes to those levels are often driven by decisions made by one or a few customers with short, one to three year horizons. The distribution planning process has been coordinated with the past IRP process and is expected to continue to be with the proposed CESP process.

Please see the Hawaiian Electric Companies’ responses to KIUC-HECO-IR-1 and COUNTIES-HECO-IR-2 for additional information regarding the Hawaiian Electric Companies’ proposal on Locational Value Maps.

# Hawaii Renewable Energy Alliance



## HREA-HECO-IR-1

In its Preliminary Statement of Position (PSOP”), HREA proposed a set of governing principles that were broken down into the three following categories: overall, resource selection and acquisition, and IRP process. These proposed principles are listed below without the explanatory text that was included in our PSOP, and edited for clarity;

- Overall IRP Goals are to:
  - Meet forecasted electrical energy demand (MW, MWHs) via demand- and supply-side resources over the IRP period.
  - Identify and meet state energy objectives, and comport with state and county environmental, health, and safety laws by formally adopting state and county plans.
  - Maintain and enhance electrical system reliability, safety and security to facilitate state energy objectives and policies.
- Resource Acquisition and Operation to:
  - Establish and maintain a “no regrets policy” for resource acquisition, e.g., energy efficiency, conservation, renewables and storage.
  - Phase out conventional fossil facilities.
  - Establish and maintain preferred acquisition methods, e.g., net metering, feed-in tariffs, competitive bidding and non-bid contracts.
  - Prioritize implementation of distribution generation over central generation.
  - Design, modify, and operate the utility system to maximize the use of clean energy resources.
  - Mitigate power outages after catastrophic events.
- IRP Process will include:
  - Ongoing, open, transparent, efficient and nimble.
  - Clear definition of roles, responsibilities and legal standing of all IRP participants.
  - A basic plan for a period of 20 years with an action plan of five or more years, annual reviews and flexible periods for major revisions every three to five years.
  - One plan for each island utility and an overall plan for the island chain.
  - Incorporation of appropriate analytical methodologies, such as discounted lifecycle analysis and clean energy scenario planning.
  - Consideration of the plans’ impacts upon the utility’s consumers, the environment, local culture, community lifestyles, the State’s economy, and society in general.
  - All Parties’ recovery of a portion up to all costs of their participation in IRP.

That said, do the Parties support the governing principles as proposed above? Given that HREA is seeking to establish the level of support for each of the principles, please respond with detail as to:

1. Those principles that can be supported (with or without comments), and
2. Those principles that cannot be supported (with comments).

Finally, the Parties are asked to suggest additional principles, as appropriate, with supporting comments.

Hawaiian Electric Companies' Response:

The Hawaiian Electric Companies appreciate HREA's intent of "seeking to establish the level of support for each of the principles" that HREA proposed and will respond with general comments in lieu of addressing each principle in detail. HREA describes ideas for governing principles for the framework but not how the information would be incorporated into the framework itself.

The Hawaiian Electric Companies note that portions of HREA's proposed principles go beyond governing principles and identify additional parameters such as roles and responsibilities of parties. Without context, it is difficult for the Hawaiian Electric Companies to provide comments on HREA's proposal.

# Hawaii Solar Energy Association

HSEA-HECO-IR-1

Ref:

- a. Are there any jurisdictions or energy utilities that have adopted "scenario planning" that you contend is similar to the CESP proposal? If yes, then please identify the jurisdictions or utilities and explain with specificity the similarities and differences between their scenario planning and the CESP proposal.
- b. Please provide any and all documents relating to the response to IR-1(a) above.

Hawaiian Electric Companies' Response:

- a. The Hawaiian Electric Companies do not know of any specific jurisdictions or energy utilities that have adopted "scenario planning" similar to the Proposed CESP Framework.
- b. Not applicable.

HSEA-HECO-IR-2

Ref:

- a. Are there any jurisdictions or energy utilities that have adopted "Locational Value Maps" that you contend are similar to those in the CESP proposal? If yes, then please identify the jurisdictions or utilities and explain with specificity the similarities and differences between their Locational Value Maps and those in the CESP proposal.
- b. Please provide any and all documents relating to the response to IR-2(a) above.

Hawaiian Electric Companies' Response:

- a. Any Locational Value Map ("LVM") process needs to be tailored for the specific jurisdiction or utility with quality mapping data. Goals and objectives of the LVMs and LVM process need to be defined so appropriate scenarios can be created to evaluate the analytical results, conduct trade-offs and determine viable options to convey in map form. Transparency and robustness of the process will depend on the level that each jurisdiction or utility involves outside feedback or considers other non-energy factors in the "value" analysis. The Locational Value Maps represent end products of the analysis and therefore only provide a view of select scenarios.

To date, the California ISO has utilized a generally similar process to develop their version of the "Preliminary Report of Renewable Transmission Plans" referencing California Energy Commission's Intermittency Analysis Program ("IAP") effort. In their report, they cited and built upon the scenarios that were developed under the IAP and utilized foundational information used in the locational value process. As part of the Northern California Regional Integration of Renewables effort involving the Northern California utilities (led by PG&E), the CEC IAP results also provided the foundations (data and analysis) to further refine the integration needs for the Northern California utilities and

ISO (SMUD, TANC, PG&E, WAPA, and CalISO).

Other states participating in the Western Governor's Association WREZ process are also working through the process of identifying the renewable resources and high-level transmission corridors. The California dataset provided input to the WREZ process.

Please see the Hawaiian Electric Companies' responses to KIUC-HECO-IR-1 and COUNTIES-HECO-IR-2 for additional information on Hawaiian Electric Companies' proposed LVM.

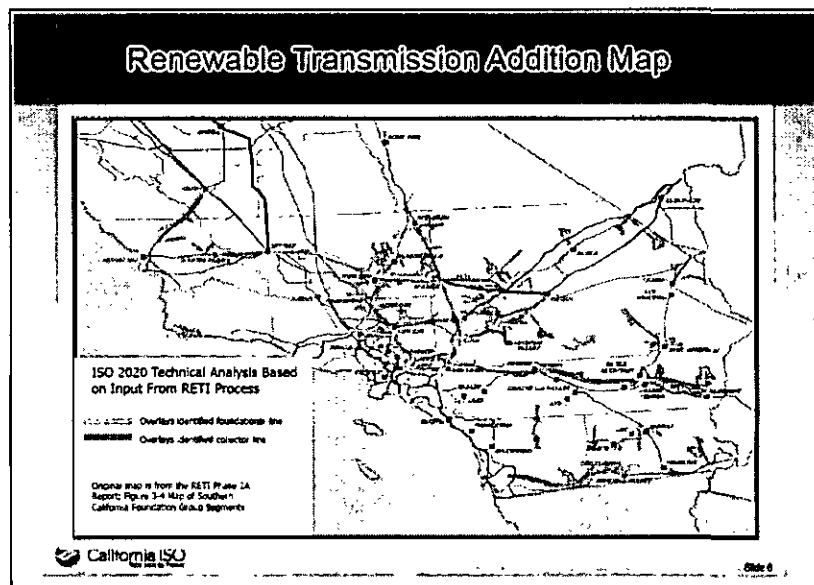
- b. Links to the California Energy Commission website list of resources for REZ data

[http://www.energy.ca.gov/reti/steering/2007-10-29\\_meeting/2007-10-29\\_RETI\\_EXISTING\\_REPORT\\_RESOURCES.PDF](http://www.energy.ca.gov/reti/steering/2007-10-29_meeting/2007-10-29_RETI_EXISTING_REPORT_RESOURCES.PDF)

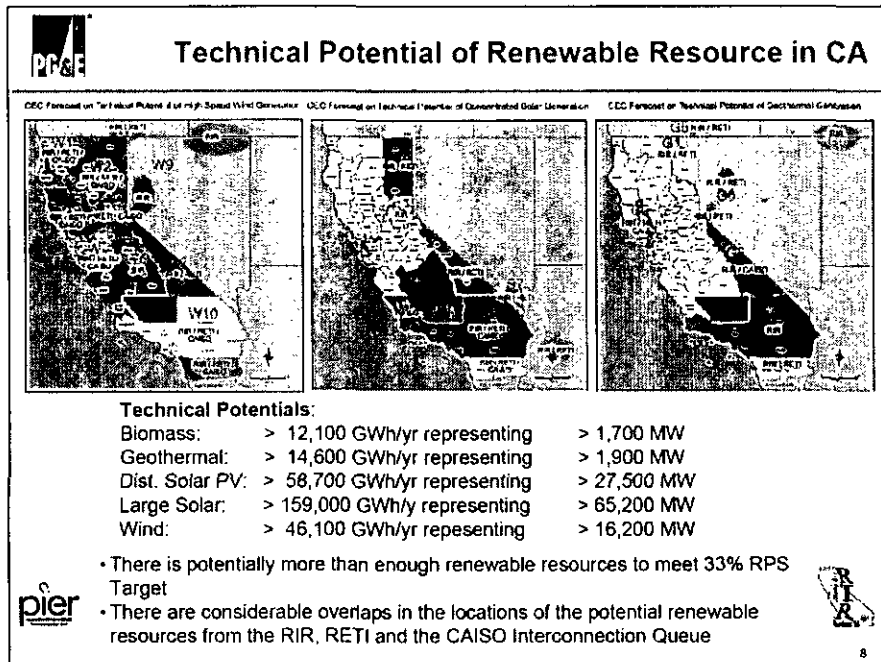
Link to CalISO site on their integration planning document

California Independent System Operator **Renewable Integration Study**

[www.caiso.com/244e/244ef0bc5f6d0.pdf](http://www.caiso.com/244e/244ef0bc5f6d0.pdf) - 2009-10-22



Link to PG&E RIR site [www.pge.com/rir](http://www.pge.com/rir)



[http://www.pge.com/includes/docs/pdfs/mybusiness/customerservice/nonpgeutility/electrictransmission/rirproject/rirstakeholdersconferencecall\\_060209.pdf](http://www.pge.com/includes/docs/pdfs/mybusiness/customerservice/nonpgeutility/electrictransmission/rirproject/rirstakeholdersconferencecall_060209.pdf)

HSEA-HECO-IR-3

Ref:

- a. Are there any jurisdictions or energy utilities that have adopted "Clean Energy Investment Zones" that you contend are similar to those in the CESP proposal? If yes, then please identify the jurisdictions or utilities and explain with specificity the similarities and differences between their Clean Energy Investment Zones and those in the CESP proposal.
- b. Please provide any and all documents relating to the response to IR-3(a) above.

Hawaiian Electric Companies' Response:

- a. The Hawaiian Electric Companies are not aware of any specific jurisdiction or other energy utility which has adopted specific "Clean Energy Investment Zones", but the concept of identifying candidate resource areas and targeting focused initiatives and special incentives to develop renewable generation and transmission capacity in the zones can be found in a number of states (e.g. CT, TX, CA) and jurisdictions either in the form of Clean Energy Funds or other collaborative processes like the Federal Corridors work and the Western Governor's Association's WREZ effort in which energy utilities are participants. These "investment zone" initiatives are similar in that they are being jumpstarted with special funds or limited resources to facilitate the development of some desired development goals such as infrastructure build-out or promoting a subset of energy resources.

The investment zones discussed above is different from what is proposed in the CESP framework because the utility will not be responsible for providing incentives or funds for investment in the designated zones. The utility would only be responsible for designating the zones and publicizing it.

- b. References to other "investment zone" type of programs are cited below as examples however programs such as these continue to emerge and evolve.



1) Investment Zones links with Funds:

- Connecticut's Clean Energy Fund implementing a Clean Communities program that promotes clean energy purchase by municipalities and residents and offers a 1-kW solar panel as an incentive.

<http://www.ctcleanenergy.com/>

- October 16, 2009 — Congressman Brian Higgins (NY-27) introduced the Green Energy Investment Zone Act (H.R. 3834) a bill that would enhance renewable energy tax credits for economically distressed cities.

<http://www.opencongress.org/bill/111-h3834/show>

2) Infrastructure or Technology targeted zones to inform investment programs

- WGA WREZ process
  - <http://www.westgov.org/wga/initiatives/wrez/gtm/index.htm>
  - <http://wilderness.org/content/comments-wga-wrez-maps>
  - [http://www.blm.gov/pgdata/etc/medialib/blm/nm/programs/more/lands\\_and\\_realty/sunzia/sunzia\\_maps.Par.41410.File.dat/WREZ-sunzia-corridor-map.pdf](http://www.blm.gov/pgdata/etc/medialib/blm/nm/programs/more/lands_and_realty/sunzia/sunzia_maps.Par.41410.File.dat/WREZ-sunzia-corridor-map.pdf)
  - <http://www.westgov.org/wga/initiatives/wrez/gtm/members.pdf>
- TX CREZ
  - [http://www.seco.cpa.state.tx.us/re\\_rps-portfolio.htm](http://www.seco.cpa.state.tx.us/re_rps-portfolio.htm)
  - [http://www.bakerbotts.com/file\\_upload/documents/FinalCREZRule\\_001.pdf](http://www.bakerbotts.com/file_upload/documents/FinalCREZRule_001.pdf)

HSEA-HECO-IR-4

Ref:

- a. Are there any jurisdictions under which approvals in a "scenario planning" or IRP proceeding "elevate the status of the preferred resources identified in the [plan] ... to give them a presumption of need in any subsequent siting proceeding," as proposed in § *IID.2* of the CESP proposal? If yes, then please identify those jurisdictions.
- b. Please provide any and all documents relating to the response to IR-4(a) above.

Hawaiian Electric Companies' Response:

- a. The Hawaiian Electric Companies do not know of any jurisdictions that have the specific approvals discussed in the Proposed CESP Framework.
- b. Not applicable.

HSEA-HECO-IR-5

Ref:

Please define with specificity which "subsequent siting proceeding(s)" you propose to be governed by the "presumption of need" under § II.D.2 of the CESP proposal.

Hawaiian Electric Companies' Response:

The "subsequent siting proceedings" that the Hawaiian Electric Companies refer to include, but are not limited to, proceedings related to capital projects such as generation additions and transmission system infrastructure projects. All capital expenditures in excess of \$2,500,000 are submitted to the Commission for review and approval under paragraph 2.3.g.2 of General Order No. 7 (as amended by Decision and Order No. 21002, filed May 27, 2004 in Docket No. 03-0257).

HSEA-HECO-IR-6

Ref:

Please describe and explain with specificity what is meant and intended by the term "high level" or "higher level" planning in the CESP proposal (see e.g., §§ IID.3 and IV.J.1) and how exactly it differs from the level of planning under previous IRP proceedings.

Hawaiian Electric Companies' Response:

The IRP Framework established an optimization planning process in which resulted in the development of a filing of a 20-year preferred resource plan. The integration work to perform plan option optimization and this 20-year plan included detailed cost, efficiency, and emission performance. The optimization process was based upon multiple planning assumptions and forecasts developed with detail but subject to significant future uncertainty. Any differences between planning assumptions and forecasts from actual results have an impact on optimization results.

Additionally, in the past IRP proceedings, the Hawaiian Electric Companies performed sensitivity and scenario analyses on the numerous plans developed under the base assumptions to provide insight on how the plans could change under a different assumption such as higher fuel prices or a higher demand forecast. However, the selection of the Preferred Plan and the resulting Action Plan was still based on one of the plans that was developed using the base assumptions and did not directly reflect any of the sensitivity or scenario analyses.

Since the IRP Framework was established, the PUC has adopted a Framework for Competitive Bidding for New Generating Capacity in Hawaii by Decision and Order No. 23121 in Docket No. 03-0372. Competitive Bidding leaves to the market specific technology, location, operational and cost and requires the IRP process to identify the need for and attributes of the

resource(s) required. Such procurement methods removes specific cost and other project details from the planning process to be identified by market input in the procurement process.

The Hawaiian Electric Companies intent of “high level” or “higher level” planning refers to the fact that the proposed CESP scenarios are intended to develop resource plans that are useful to policy and decision makers in a dynamic and unpredictable electric utility environment. In addition, “high level” planning also refers to the development of resource plan details at a level consistent with the requirements of the Framework for Competitive Bidding for New Generation.

As discussed on pages 17-18 of the Hawaiian Electric Companies’ Preliminary Statement of Position, the 5-year Action Plan would give consideration to all the 20-year plans under the various CESP scenarios analyzed in lieu of selecting only a single “preferred plan”. The proposed CESP framework will not require the selection of a “preferred plan” and will focus on the near-term 5-year Action Plan. Specificity of utility actions during this 5-year period will be part of the Action Plan.

The Hawaiian Electric Companies are not specifically proposing that the level of analytical work in the proposed CESP process will be less than what was provided under the IRP process. The process for developing 20-year plans for the various CESP scenarios will still require significant analytical work that was in the IRP process for developing the 20-year plans under the base assumptions. In fact, the amount of work the Hawaiian Electric Companies are proposing could be viewed as more than what was done in the previous IRP proceedings in order to develop reasonable resource plans with additional compliance requirements, with less certainty and predictability of planning assumptions and forecasts, and with the addition of locational value maps and renewable energy zones.

HSEA-HECO-IR-7

Ref:

Please describe and explain with specificity any and all actual differences between the method of analysis employed under the last IRP proceeding (aka "IRP-4") and the proposed method of analysis under the CESP proposal.

Hawaiian Electric Companies' Response:

Please see the Hawaiian Electric Companies' response to HSEA-HECO-IR-6.

Marriotts

MAR-HECO-IR-1

Please provide a complete copy of all of your responses to all information requests filed by any party or participant in these proceedings. This request applies to information requests that have already been filed and to information requests that are filed in the future.

Hawaiian Electric Companies' Response:

A complete copy of the Hawaiian Electric Companies' responses to Information Requests filed by the parties or participant will be served upon all parties and participants in the subject docket via hand delivery, U.S. Mail, or electronic copy.